

Abstract

A rotary engine utilizing an expansion chamber and crescent piston to capture the energy of expanding combustion gases throughout substantially all of each revolution of the piston. The rotary engine uses a crescent piston, the movement of which is guided by the combined action of a hub having a saddle supporting the piston and a can track. The invention burns fuel in a separate combustion chamber charged from a coaxially mounted compressor and controlled by a pass gate sentry valve. The rotary engine of the invention is cooled by an internal coolant injection system. The coolant solution may contain an alkaline reagent to react with and neutralize acidic components of the combustion gases which would otherwise remain in the exhaust and contribute to air pollution. The rotary engine of the present invention is adaptable to compression ignition fuels and spark ignition fuels. The invention may be constructed of conventional metallic materials as well as composites and ceramics.